The following is a complete listing of all claims in the application, with an indication of the status of each:

Listing of claims:

1. (currently amended) A method for reducing motion artifacts and patient dose in radiological imaging using four dimensional computed tomography (4D CT), comprising the steps of:

identifying a pattern in an average cycle of an anatomy being imaged, said pattern being responsive to a ~~reproducable~~ reproducible periodic motion of said anatomy learned through training of the patient;

establishing spatial and temporal tolerances around said pattern, said tolerances being based on data of said periodic motion learned through training of the patient and forming an envelope around said pattern balancing an acquisition time against a quality of an acquired 4D CT image;

measuring a periodic motion of said anatomy so as to detect when said periodic motion is outside said tolerances;

controlling a 4D CT scan of said anatomy so as to pause the scan during periods having said detected out of tolerance condition.

2. (original) A method as in claim 1, wherein said anatomy is a lung and said measuring step uses a respiratory signal.

3. (canceled).

4. (previously presented) The method of claim 2, wherein said controlling step further includes the steps of:

acquiring a respiratory signal during said 4D CT scan;

applying said envelope to said respiratory signal; and

adapting said 4D CT scan to said respiratory signal by excluding from said 4D CT scan data acquired when said respiratory signal is not within said envelope.

5. (original) The method of claim 4, wherein data acquired during irregular respiratory cycles is excluded by pausing said 4D CT scan data acquisition when said respiratory signal is not within said envelope.

6. (currently amended) A system for reducing motion artifacts and patient dose in radiological imaging using four dimensional computed tomography (4D CT), comprising:

means for identifying a pattern in an average cycle of an anatomy being imaged, said pattern being responsive to a ~~reproducable~~ reproducible periodic motion of said anatomy learned through training of the patient;

means for establishing spatial and temporal tolerances around said pattern, said tolerances being based on data of said periodic motion learned through training of the patient and forming an envelope around said pattern balancing an acquisition time against a quality of an acquired 4D CT image;

means for measuring a periodic motion of said anatomy so as to detect when said periodic motion is outside said tolerances;

means for controlling a 4D CT scan of said anatomy so as to pause the scan during periods having said detected out of tolerance condition.

7. (original) A system as in claim 6, wherein said anatomy is a lung and said measuring means uses a respiratory signal.

8. (canceled).

9. (previously presented) The system of claim 7, wherein said controlling step further comprises:

means for acquiring a respiratory signal during said 4D CT scan;

means for applying said envelope to said respiratory signal; and

means for adapting said 4D CT scan to said respiratory signal by excluding from said 4D CT scan data acquired when said respiratory signal is not within said envelope.

10. (previously presented) The system of claim 9, wherein said adapting means provides that data acquired during irregular respiratory cycles is excluded by pausing said 4D CT scan data acquisition when said respiratory signal is not within said envelope.

11. (currently amended) A method for reducing motion artifacts in radiological imaging using four dimensional computed tomography (4D CT), comprising the steps of:

identifying a pattern in an average cycle of an anatomy being imaged, said pattern being responsive to a ~~reproducable~~ reproducible periodic motion of said anatomy learned through training of the patient;

establishing spatial and temporal tolerances around said pattern, said tolerances being based on data of said periodic motion learned through training of the patient and forming an envelope around said pattern balancing an acquisition time against a quality of an acquired 4D CT image;

measuring a periodic motion of said anatomy so as to detect when said periodic motion is outside said tolerances;

controlling post-processing of a 4D CT scan of said anatomy so as to omit data acquired during periods having said detected out of tolerance condition.

12. (original) A method as in claim 11, wherein said anatomy is a lung and said measuring step uses a respiratory signal.

13. (canceled).

14. (previously presented) The method of claim 12, wherein said controlling step further includes the steps of:

acquiring a respiratory signal during said 4D CT scan;

applying said envelope to said respiratory signal; and

adapting said 4D CT scan to said respiratory signal by excluding during said post-processing of said 4D CT scan data acquired when said respiratory signal is not within said envelope.

15. (original) The method of claim 14, wherein data acquired during irregular respiratory cycles is excluded by omitting data acquired during said 4D CT scan when said respiratory signal was not within said envelope.